

Performance of Pumpkin Cultivars, Plateau Experiment Station, 2000

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Interpretative Summary

The pumpkin cultivars were highly productive, and fruit size was very large for most of the large fruited cultivars. 'Autumn King', 'Gold Rush', 'Mother Lode', 'Magic Lantern', 'Gold Fever', 'HMX 6689', and 'HMX 9698' produced a high tonnage of large fruit. The small fruited cultivars performed well, although size and appearance varied with cultivar.

Introduction

Pumpkins are grown in large commercial acreage for the Halloween market in Tennessee. An estimated 3500 acres of pumpkins are produced in Tennessee, with over half on the Cumberland Plateau. Pumpkins have been a profitable crop in recent years, and acreage production seems to increase each year. Several tobacco and row crop producers have considered or actually produced pumpkins as an alternative crop. Pumpkin production has many problems that need to be addressed for successful production of pumpkins. Weed control can be a problem in pumpkins as labeled herbicides fail to control all species of weeds adequately. Insecticides and fungicides need to be applied on a 7 to 10 day frequency. Bees are needed for pollination. Pumpkins require a fairly high degree of management for successful results. An experiment was conducted at the Plateau Experiment Station at Crossville, TN in 2000 to evaluate performance of 21 pumpkin cultivars.

Materials and Methods

The site was prepared for planting by conventional tillage methods. Fertilizer was broadcast at 400 lb/A of 15-15-15 and incorporated with a disk on May 22. Bensulide (Prefar) was applied at 6.0 lb ai/A on May 31 and soil incorporated with the final disking. Plots were direct seeded with the selected cultivars on June 1. Plot size was one row, with a spacing of 12 by 20 ft. Each row contained 5 hills with 3 seeds/hill. After germination, hills were thinned to 2 plants/hill. Experimental plot design was a randomized complete block with four replications. A preemergence application of clomazone (Command) at 0.375 lb ai/A was made on June 3.

Insect control was by esfenvalerate (Asana) at 0.05 lb ai/A alternated with carbaryl (Sevin) at 1.0 lb ai/A on a 7 to 10 day frequency. Fungicides were azoxystrobin (Quadris) at 0.25 lb ai/A alternated with a combination of chlorothalonil (Bravo) at 2.0 lb ai/A and myclobutanil (Nova) at 0.125 lb ai/A applied with each insecticide treatment. Pumpkins were harvested on Sept 27 and 28. Harvested pumpkins were sorted according to sizes of over 20 lb, 15 to 20 lb, 10 to 15 lb, and less than 10 lb. Number and weight of

pumpkins in each weight range were recorded. Quality ratings were made at harvest. All ratings were on a 1 to 10 scale with 10 the most desirable. All data were analyzed by analysis of variance methods, and means were separated by Duncan’s multiple range tests at the 0.05 level.

Results and Discussion

‘HMX 6689’ produced more total tons of pumpkins than all cultivars except ‘Autumn King’, ‘Magic Lantern’ and ‘Mother Lode’ (Table 1). ‘Baby Pam’ and ‘Wee-B-Little’ produced less tonnage than all cultivars except ‘Peek-A-Boo’ and ‘RWS 6260’. The six small fruited cultivars did not produce any pumpkins that weighed over 10 lb. ‘Hybrid Pam’ produced a higher tonnage in the less than 10 lb class than any other cultivar. ‘Gold Rush’ produced a larger tonnage that weighed over 20 lb per pumpkin than all cultivars except ‘Gold Strike’, ‘Howden’, ‘HMX 6689’, ‘HMX 9698’ and ‘Mother Lode’. ‘Appalachian’ produced a higher tonnage that weighed between 15 and 20 lb per pumpkin than all cultivars except ‘Gold Fever’ and ‘HMX 6689’. Fruit of ‘HMX 9698’, ‘HMX 6689’, ‘Autumn King’ and ‘Gold Strike’ averaged over 20 lb per pumpkin. ‘Gold Rush’, ‘Howden’, and ‘Mother Lode’ fruit averaged almost 20 lb per pumpkin.

‘Touch of Autumn’ and ‘Wee-B-Little’ produced more pumpkins per acre and more pumpkins that weighed less than 10 lb per pumpkin than any other cultivar (Table 2). Yields in number of fruit per acre generally were very high and ‘Howden’, the check cultivar, produced 2450 pumpkins per acre. This is a high yield since the row spacing was 12 ft in order to help separate the cultivars at harvest. ‘Autumn King’ produced more fruit that weighed over 20 lb per pumpkin than all cultivars except ‘Appalachian’, Gold Rush’, and ‘Mother Lode’. ‘Magic Lantern’ and ‘HMX 6689’ produced more pumpkins per acre in the 15 to 20 lb class than all cultivars except ‘Appalachian’ and ‘Gold Fever’.

Most cultivars were rated high for quality characteristics (Table 3). ‘HMX 4694’, ‘HMX 9698’, ‘Magic Lantern’ and ‘Merlin’ were among cultivars rated high for fruit color. Ratings for appearance were not significantly different due to cultivar. Fruit of ‘Gold Rush’ and ‘Howdy Doody’ had very large and nice stems. Cultivars varied in uniformity, as size and shape of pumpkins was not uniform within a cultivar. ‘Wee-B-Little’ was rated as one of the most uniform cultivars in fruit type. Fruit of ‘Autumn King’ was among the largest in diameter and fruit of ‘Wee-B-Little’ was among the lowest in diameter. ‘Gold Rush’ was among cultivars with the most length while ‘Wee-B-Little’ was among cultivars with the least fruit length.

Table 1. Yield in tons per acre of different size classes of pumpkin cultivars at The University of Tennessee Plateau Experiment Station at Crossville, 2000.

	Total	Pumpkins<	Pumpkins10-	Pumpkins	Pumpkins	Pum
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Cultivar	yield - tons/A	10 lb tons/A	15 lb tons/A	15-20 lb tons/A	>20 lb tons/A	average wt - lb
Appalachian	25.1 bcd ²	1.5 gh	3.8 cde	7.8 ab	17.2 bc	14.8 ef
Autumn King	28.8 ab	0.4 h	2.0 ef	2.0 def	23.6 a	23.6 a
Gold Fever	22.9 b-e	6.0 de	8.2 b	7.7 ab	1.0 h	11.0 g
Gold Rush	22.3 b-e	0.2 h	0.9 ef	2.4 ef	18.8 abc	23.2 a
Gold Standard	23.5 b-e	4.9 def	11.8 a	5.9 a-e	0.9 h	11.9 fg
Gold Strike	21.8 b-e	0.4 h	3.0 def	4.6 b-e	13.8 cde	20.7 abc
Howden (Ck)	23.0 b-e	1.0 gh	3.1 def	4.8 bcde	14.0 cde	18.8 abc
Howdy Doody	17.7 c-f	3.0 fg	8.0 b	7.2 abc	4.1 hg	11.9 fg
HMX 4694	23.9 b-e	1.7 gh	5.7 bcd	9.5 a	6.0 fgh	15.1 ef
HMX 6689	23.6 a	0 h	1.7 ef	6.3 a-d	22.9 ab	23.6 a
HMX 9698	20.9 c-f	1.1 gh	2.1 ef	3.5 c-f	10.9 bef	20.5 abc
Magic Lantern	26.2 abc	1.7 gh	6.2 bc	9.2 a	9.0 efg	16.3 de
Merlin	15.8 efgh	4.1 ef	6.2 bc	3.3 def	2.1 h	11.1 g
Mother Lode	25.6 a-d	0.8 h	2.7 def	5.3 b-e	17.7 bcd	19.9 a-d
Old Zebs	20.0 c-f	1.0 gh	3.2 def	5.2 b-e	10.2 ef	17.5 cde
Small fruited						
Baby Pam	6.5 j	6.5 d	0 f	0 f	0 h	2.5 hi
Hybrid Pam	14.1 f-h	14.1 a	0 f	0 f	0 h	5.6 h
Peek-A-Boo	9.8 hj	9.8 c	0 f	0 f	0 h	3.8 hi

RWS 6260	9.9 hj	9.9 c	0 f	0 f	0 h	2.3 hi
Touch of Autumn	11.9 ghi	11.9 b	0 f	0 f	0 h	2.2 hi
Wee-B-Little	3.7 j	3.7 f	0 f	0 f	0 h	0.7 i

² Means within a column followed by the same letter are not significantly different at the 0.05 level of probability, Duncan's multiple range tests.

Table 2. Yield in number per acre of different size classes of pumpkin cultivars at The University of Tennessee Plateau Experiment Station at Crossville, 2000.

Cultivar	total yield - no.	Pumpkins < 10 lb no./A	Pumpkins 10-15 lb no./A	Pumpkins 15-20 lb no./A	Pumpkins > 20 lb no./A	Season
Appalachian	3766 c-f ²	454 de	590 cdef	908 ab	1407 abc	Per
Autumn King	2450 dg	91 e	318 fg	318 cde	1724 a	Ru
Gold Fever	4125 cd	1770 d	1361 b	908 ab	91 gh	Ru
Gold Rush	1906 g	45 e	1360 fg	272 de	1452 ab	Ru
Gold Standard	3948 c-e	1270 de	1906 a	726 abc	91 gh	Ru
Gold Strike	2178 fg	91 e	2454 efg	544 bcd	1089 bcd	Ru
Howden (Ck)	2450 dg	272 de	499 def	544 bcd	1134 bcd	Ha
Howdy Doody	2813 dg	862 de	1316 b	862 ab	499 efg	Ru
HMX 4694	2995	454 de	862 cde	1134 a	544 ef	Ha

	dg					
HMX 6689	2768 dg	0 e	272 fg	726 abc	1679 a	Harris
HMX 9698	2133 fg	309 de	318 fg	408 cde	998 cd	Harris
Magic Lantern	3222 dg	454 de	953 bcd	1044 a	771 de	Harris
Merlin	2904 dg	1406 de	998 bc	363 cde	182 fgh	Harris
Mother Lode	2586 dg	227 e	408 efg	590 bcd	1407 abc	Rupp
Old Zebs	2269 eg	318 de	499 def	590 bcd	817 de	Rupp
Small type						
Baby Pam	5354 c	5354 c	0 g	0 e	0 h	Seedway
Hybrid Pam	5037 c	5037 c	0 g	0 e	0 h	Seedway
Peek-A-Boo	5173 c	5173 c	0 g	0 e	0 h	Novartis
RWS 6260	8621 b	8621 b	0 g	0 e	0 h	Novartis
Touch of Autumn	10890 a	10890 a	0 g	0 e	0 h	Novartis
Wee-B-Little	10209 a	10209 a	0 g	0 e	0 h	Novartis

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Table 3. Quality ratings of pumpkin cultivars at The University of Tennessee Plateau Experiment Station at Crossville, 2000.

Cultivar	Fruit color	Fruit app.	Stem quality	Fruit uniformity	Fruit length	Fruit diameter
Appalachian	9.00 abcd ^z	9.25 a	8.75 abc	8.00 bcd	11.30 b-f	10.22 b-e
Autumn King	9.25 abcd	8.75 a	8.50 bc	8.25 bcd	13.50 a	10.95 a-d
Gold Fever	9.00 abcd	8.75 a	9.00 abc	7.25 de	8.25 i	8.05 fg
Gold Rush	8.75 bcd	7.75 a	10.00 a	7.50 cde	10.60 d-g	12.35 a
Gold Standard	8.75 bcd	8.50 a	9.00 abc	8.50 abcd	9.17 fgh	9.45 def
Gold Strike	8.50 cd	8.25 a	9.25 ab	8.00 bcd	12.12 a-d	9.82 b-e
Howden (Ck)	9.75 ab	8.25 a	8.75 abc	8.50 abcd	11.50 a-f	10.90 a-d
Howdy Doody	8.25 b	8.25 a	10.00 a	7.50 cde	8.72 hi	9.55 c-f
HMX 4694	10.00 a	10.00 a	9.00 abc	8.50 abcd	11.25 c-f	10.42 bcd
HMX 6689	10.00 a	9.00 a	8.25 bc	6.25 e	12.32 a-c	11.40 abc
HMX 9698	9.25 abcd	8.75 a	9.00 abc	8.00 bcd	11.97 a-e	9.87 b-e
Magic Lantern	10.00 a	9.75 a	8.50 bc	8.50 abcd	10.42 efg	10.32 bcd
Merlin	10.00 a	8.50 a	9.25 ab	6.25 e	9.12 ghi	8.47 efg
Mother Lode	8.25 d	7.75 a	7.25 c	7.25 de	12.25 ab	10.12 b-e
Old Zebs	9.25 ab	9.00 a	8.75 abc	7.50 cde	10.17 fgh	11.67 ab
Small type						
Baby Pam	9.25 abcd	7.75 a	9.00 abc	9.00 ab	5.22 j	5.12 ij
Hybrid Pam	10.0 a	9.75 a	9.50 ab	8.75 abc	5.90 j	6.95 gh
Peek-A-Boo	8.75 bcd	8.25 a	8.25 bc	8.25 bcd	5.60 j	6.05 hi

RWS 6260	8.25 d	8.00 a	8.25 bc	9.00 ab	4.50 j	4.55 ij
Touch of Autumn	8.50 cd	8.00 a	8.25 bc	8.50 abcd	5.00 j	4.57 ij
Wee-B-Little	9.75 ab	7.75 a	8.50 bc	9.75 a	2.57 k	3.42 j

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